

**ENVIRONMENTAL ASSESSMENT FOR 8 BLM ALLOTMENTS LOCATED IN THE  
ALAMOSA-TRINCHERA, CONEJOS AND UPPER RIO GRANDE WATERSHEDS  
EA#NM-220-08-037**

**PURPOSE AND NEED**

One of the major uses of public lands administered by the Bureau of Land Management (BLM) has traditionally been the grazing of cattle, sheep or horses for the benefit of individuals and communities throughout the western United States. This use is regulated by public land legislation, including the Taylor Grazing Act, the Endangered Species Act, the Federal Land Policy and Management Act, and the Public Rangelands Improvement Act. This document provides information needed to determine whether BLM should renew permits for cattle grazing on 8 allotments within the Alamosa-Trinchera, Conejos and Upper Rio Grande watersheds for an additional 10 years. The 8 allotments are being analyzed in one document in order to address the cumulative effects of changing dates and kind of livestock on the BLM parcels within the watersheds and establish a grazing program for the permittee who holds the permit for all the following allotments: North Pinabetoso #575, Wissmath #607, North Pot #642, Little Atencio Place #643, Punche Place #644, Rio East #645, Rio West #646 and North San Antone #649.

**PROPOSED ACTION AND ALTERNATIVES**

**Proposed Action:**

Re-issue a term grazing lease for all allotments under the following new guidelines (Table 1). It is proposed to reinstate suspended AUMs for allotments #607 (an increase of 66 Active AUMs), #642 (an increase of 88 Active AUMs) and #643 (an increase of 24 Active AUMs). AUMs were suspended in an Environmental Assessment in 1990 (EA-018-90-6) due to non-use because of the numbers of livestock run by the permittee during that time frame. Livestock at that time was sheep; it is proposed that these allotments be changed to cattle. Also, dates of grazing are being slightly changed to better suit the rotation of a cattle only grazing permit. For additional information, refer to Allotment Evaluation documents available for each allotment at the Taos BLM Field Office.

Table 1: Outline of allotment guidelines for permit renewals

<b>Allotment Number</b>	<b>575</b>	<b>607</b>	<b>642</b>	<b>643</b>	<b>644</b>	<b>645</b>	<b>646</b>	<b>649</b>
<b>Livestock Type</b>	Cattle	Cattle	Cattle	Cattle	Cattle	Cattle	Cattle	Cattle
<b>Livestock Number</b>	460	460	460	460	460	460	460	460
<b>Season of Use</b>	11/15 – 11/30	12/4 – 12/10	12/11 – 12/26	12/1 – 12/3	1/17 – 1/29	12/27 – 1/16	6/1 – 6/9 11/1 – 11/14	6/10 – 6/16 10/7 – 10/13
<b>AUMs</b>	242	79	167	45	181	377	275	197
<b>Total Federal Acres</b>	1,760	1,440	4,274	964	3,010	3,885	4,343	2,134
<b>Pastures</b>	1	1	2	1	1	1	1	1
<b>Grazing System</b>	Dormant season	Dormant season	Dormant season	Dormant season	Dormant season	Dormant season	Rotational	Rotational
<b>Proposed Improvements</b>	None	None	None	None	None	sagebrush treatment to increase edge and create multi-age structure	None	None

<b>Monitoring</b>	BLM would continue the rangeland monitoring study program as well as develop and maintain monitoring on the new treatment areas, continue to consult with the grazing permittee on placement of mineral and supplemental feed and continue monitoring for new populations of noxious weeds.
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### Alternative 1: No Action

Re-issue term grazing permits as set forth in the previous Environmental Assessments as outlined in Table 2.

Table 2: Outline of allotment guidelines for permit renewals

<b>Allotment Number</b>	<b>575</b>	<b>607</b>	<b>642</b>	<b>643</b>	<b>644</b>	<b>645</b>	<b>646</b>	<b>649</b>
<b>Livestock Type</b>	Cattle	Sheep	Cattle & Sheep	Sheep	Cattle	Cattle	Cattle	Cattle
<b>Livestock Number</b>	460	400 700	700 Sheep 700 Sheep 460 Cattle	400 400	460	460	240 460	300
<b>Season of Use</b>	11/25 – 12/10	5/17 - 5/25 2/1 - 2/14	1/1 - 1/31 2/15 - 3/5 21/11 - 2/12	5/10 - 5/16 5/26 - 6/4	1/4 - 1/15	12/13 - 1/3	6/1 – 6/15 11/0 – 11/24	10/7 – 10/14
<b>AUMs</b>	242	66	223	42	181	377	275	197
<b>Total Federal Acres</b>	1,760	1,440	4,274	964	3,010	3,885	4,343	2,134
<b>Pastures</b>	1	1	2	1	1	1	1	1
<b>Grazing System</b>	Dormant season	Dormant season	Dormant season	Dormant season	Dormant season	Dormant season	Rotational	Rotational
<b>Proposed Improvements</b>	None	None	None	None	None	sagebrush treatment to increase edge and create multi-age structure	None	None
<b>Monitoring</b>	BLM would continue the rangeland monitoring study program as well as develop and maintain monitoring on the new treatment areas, continue to consult with the grazing permittee on placement of mineral and supplemental feed and continue monitoring for new populations of noxious weeds.							

### Alternative 2, No Grazing:

Do not issue grazing permits for these allotments, thereby suspending livestock grazing.

### Location and Maps

**575** - Located approximately 18 miles north of Tres Piedras, in Taos County, New Mexico. Elevation on this allotment is roughly 8,000 to 8,150 feet. The allotment is located on the USGS Pinabetoso Peaks Quadrangle 7.5 minute series topographic maps. T. 31 N., R. 09 E. Sec 12 - 14 and 23.

**607** - Located approximately 13 miles north, northeast of Tres Piedras, in Taos County, New Mexico. Elevation on this allotment is roughly 7,800 to 8,100 feet. The allotment is located on the USGS Cerro de la Olla and La Segita Peaks Quadrangle 7.5 minute series topographic maps. T. 30 N., R. 10 E. Sec 28, 29, 32 and 33.

**642** - Located approximately 13 miles northeast of Tres Piedras, in Taos County, New Mexico. Elevation on this allotment is roughly 7,600 to 8,200 feet. The allotment is located on the USGS Cerro de la Olla and La Segita Peaks Quadrangle 7.5 minute series topographic maps. T. 30 N., R. 10 E. Sec 9, 10, 15, 16, 21, 22, 27

and 34-36. T. 30 N., R. 11 E. Sec 31 and 32.

**643** - Located approximately 15 miles northeast of Tres Piedras, in Taos County, New Mexico. Elevation on this allotment is roughly 8,000 to 8,100 feet. The allotment is located on the USGS La Segita Peaks Quadrangle 7.5 minute series topographic map. T. 30 N., R. 10 E. Sec 6 and 7.

**644** - Located approximately 20 miles north, northeast of Tres Piedras on the Colorado/New Mexico border, in Taos County, New Mexico. Elevation on this allotment is roughly 7,750 to 7,900 feet. The allotment is located on the USGS Pinabetoso Peaks Quadrangle 7.5 minute series topographic map. T. 32 N., R. 10 E. Sec 19-21 and 28-31.

**645** - Located approximately 10 miles northwest of Questa on the west side of the Rio Grande, in Taos County, New Mexico. Elevation on this allotment is roughly 7,500 to 7,800 feet. The allotment is located on the USGS Cerro de la Olla and Sunshine Quadrangle 7.5 minute series topographic maps. T. 30 N., R. 11 E. Sec 23-26, 35 and 36, T. 30 N., R. 12 E. Sec 18-20, 30 and 31.

**646** - Located approximately 20 miles north, northwest of Tres Piedras on the Colorado/New Mexico border, in Rio Arriba County, New Mexico. Elevation on this allotment is roughly 8,000 to 8,400 feet. The allotment is located on the USGS Los Pinos and Pinabetoso Peaks Quadrangle 7.5 minute series topographic maps. T. 32 N., R. 08 E. Sec 35 and 36; T. 32 N., R. 09 E. Sec 19-21 and 28-33; T. 31 N., R. 08 E. Sec 1 and 2; T. 31 N., R. 09 E. Sec 4.

**649** - Located approximately 18 miles north, northwest of Tres Piedras, in Rio Arriba County, New Mexico. Elevation on this allotment is roughly 8,450 to 8,650 feet. The allotment is located on the USGS Los Pinos Quadrangle 7.5 minute series topographic map. T. 31 N., R. 08 E. Sec 24 and 25; T. 31 N., R. 09 E. Sec 19 and 20.

See Figure 1 for the map. Individual allotment maps are available at the Taos Field Office and upon request.

## **AFFECTED ENVIRONMENT / ENVIRONMENTAL IMPACTS**

### **Areas of Critical Environmental Concern / Special Management Areas**

Two allotments (646 and 649) are adjacent to the San Antonio Gorge Area of Critical Environmental Concern (ACEC), and are included within the San Antonio Special Management Area (SMA). The other six allotments are either close to (575, 607, 643, 644 and 645) or adjacent to (642) the San Antonio SMA. In accordance with the management prescriptions for these areas no increase in grazing preference is proposed in **any alternative**. Thus, there would be no adverse affect to wilderness/wilderness study areas by **any alternative**.

### **Wilderness / Wilderness Study Areas**

Portions of two allotments (646 and 649) are within the boundary of the San Antonio Wilderness Study Area (WSA). Livestock grazing is one of the grandfathered uses within WSA. In accordance with the management prescriptions for these areas no increase in grazing preference is proposed in **any alternative**. Therefore, there would be no adverse affect to wilderness/wilderness study areas by **any alternative**.

## Air Quality

The Clean Air Act Amendments in 1990 required that all federal actions conform with State Implementation Plans for air quality. One non-attainment area has been designated in New Mexico. None of these areas are located on or near the allotment.

Although this allotment is not within a non-attainment area, greenhouse gas emissions from non-renewable sources often occur from ranching operations. Greenhouse gases (GHG), including carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>), and the potential effects of GHG emissions on climate, are not regulated by the EPA under the Clean Air Act. However, greenhouse gas emissions are linked to climate change.

Under the **proposed action and alternative 1**, GHG emissions are expected to be generated primarily from vehicles used to manage cattle operations and may be estimated to be about 10 tons of relevant emission. The BLM recommends using best management practices to reduce these emissions, such as reducing number of trips, keeping vehicle well maintained, purchasing more fuel efficient vehicles. There would be no effect under the **no grazing alternative**.

## Climate

Global mean surface temperatures have increased nearly 1.0°C (1.8°F) from 1890 to 2006 (Goddard Institute for Space Studies, 2007). However, observations and predictive models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of GHGs are likely to accelerate the rate of climate change.

In 2001, the Intergovernmental Panel on Climate Change (IPCC) predicted that by the year 2100, global average surface temperatures would increase 1.4 to 5.8°C (2.5 to 10.4°F) above 1990 levels. The National Academy of Sciences (2006) supports these predictions, but has acknowledged that there are uncertainties regarding how climate change may affect different regions. Computer model predictions indicate that increases in temperature will not be equally distributed, but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures is more likely than increases in daily maximum temperatures. It is not, however, possible to predict with any certainty regional or site specific effects on climate relative to the proposed lease parcels and subsequent actions.

However, potential impacts to natural resources and plant and animal species due to climate change are likely to be varied, including those in the southwestern United States. For example, if global climate change results in a warmer and drier climate, increased particulate matter impacts could occur due to increased windblown dust from drier and less stable soils. Cool season plant species' spatial ranges are predicted to move north and to higher elevations, and extinction of endemic threatened/endangered plants may be accelerated. Due to loss of habitat or competition from other species whose ranges may shift northward, the population of some animal species may be reduced or increased. Less snow at lower elevations would likely impact the timing and quantity of snowmelt, which, in turn, could impact water resources and species dependant on historic water conditions. Forests at higher elevations in New Mexico, for example, have been exposed to warmer and drier conditions over a ten year period. Should the trend continue the habitats and identified drought sensitive species in these forested areas and higher elevations may also be more affected by climate change.

In New Mexico, a recent study indicated that the mean annual temperatures have exceeded the global

averages by nearly 50% since the 1970's (Enquist and Gori). Similar to trends in national data, increases in mean winter temperatures in the southwest have contributed to this rise. When compared to baseline information, periods between 1991 and 2005 show temperature increases in over 95% of the geographical area of New Mexico. Warming is greatest in the northwestern, central, and southwestern parts of the state. We anticipate that monitoring efforts will help indicate vegetation shifts, allowing for management modifications to address global climate change.

## **Soils**

The following soils are identified as occurring on the allotments analyzed in the watershed:

*Antonito-Travelers association*, gently sloping. These soils consist of stony loams, with rooting depths between 20 and 40 inches. Parent material of weathered basalt and eolian materials comprise this soil. Average annual precipitation in this area ranges from 10 to 12 inches. Vegetation is characterized by western wheat, blue grama, needle and thread, fringe sage, black sagebrush, Indian ricegrass and winter fat.

*Luhon-Travelers complex*, 3 to 7 percent slopes. These soils consist of loams, with rooting depths between 20 to 60 inches. Parent material of residuum of basalt and eolian sediments comprise these soils. Average annual precipitation in this area ranges from 10 to 12 inches. Vegetation is characterized by western wheat, Indian ricegrass, and winter fat.

*Orthents-Calciorthids association*, very steep. These soils consist of gravelly or cobbly loams, with rooting depths over 60 inches. Parent material of mixed alluvium comprises these soils. Average annual precipitation in this complex ranges from 15 to 17 inches. Vegetation is characterized by pinyon, juniper, blue grama and sideoats grama.

*Petaca-Silva association*, gently sloping. The soil consists of loams, with rooting depths between 20 to over 60 inches. Parent materials of weathered basalt and eolian materials comprise this soil. Average annual precipitation ranges between 10 and 14 inches. Vegetation is characterized by western wheat, blue grama and sagebrush.

*Raton-Stunner association*, moderately steep. These soils consist of stony/cobbly loams, with rooting depths between 20 to over 60 inches. Parent material of gravelly and cobbly material weathered from basalt and eolian sediment comprises this soil. Average annual precipitation in this area ranges from 14 to 16 inches. Vegetation is characterized by squirreltail, western wheat, blue grama, sagebrush and winter fat.

*Rock outcrop-Raton complex*, moderately steep. These soils consist of stony silt loams, with rooting depths up to 20 inches. Parent material of basalt residuum and mixed eolian sediment comprise these soils. Average annual precipitation in this complex ranges from 14 to 16 inches. Vegetation is characterized by pinyon, juniper, muttongrass, Arizona fescue and western wheat.

*Shawa clay loam*, 0 to 3 percent slopes. This soil consists of clay loams with rooting depths over 60 inches. Parent materials of alluvium on playa bottoms comprise this soil. Average annual precipitation in this complex ranges from 10 to 12 inches. Vegetation is characterized by blue grama, western wheat and fourwing saltbush.

*Stunner cobbly loam*, 1 to 5 percent slopes. This soil consists of cobbly loams, with rooting depths over 60 inches. Parent material of mixed alluvium and eolian sediment comprises this soil. Average annual precipitation in this area ranges from 10 to 12 inches. Vegetation is characterized by western wheat, blue

grama, threeawn and winter fat.

*Stunner-Luhon association*, gently sloping. These soils consist of loams, with rooting depths over 60 inches. Parent material of mixed alluvium and eolian sediment comprises this soil. Average annual precipitation in this area ranges from 10 to 12 inches. Vegetation is characterized by western wheat, blue grama, threeawn and rabbitbrush.

*Stunner-Travelers association*, gently sloping. These soils consist of stony loams, with rooting depths between 20 and over 60 inches. Parent material of mixed alluvium, residuum of basalt and eolian sediment comprises this soil. Average annual precipitation in this area ranges from 10 to 12 inches. Vegetation is characterized by western wheat, blue grama, threeawn and winter fat.

*Travelers very stony loam*, 1 to 8 percent slope. This soil consists of very stony loams, with rooting depths up to 20 inches. Parent material formed of residuum and eolian material on basalt flows comprises this soil. Average annual precipitation in this area ranges from 10 to 12 inches. Vegetation is characterized by western wheat, blue grama, rabbitbrush and winter fat.

The **proposed action** and **alternative 1** could cause both positive and negative impacts to the soils. Livestock impacts to soils are dependent on management, soil properties and weather. For example, livestock movement over wet soils can result in increased erosion and soil compaction. Proper distribution of livestock minimizes the negative impacts while still providing the positive impacts, such as loosening of compacted soils and breaking up hydrophobic crusts resulting in increased infiltration. It is important that livestock are managed so that density and diversity of vegetation cover are maintained to limit soil loss.

Under current management, soil indicators for the allotments point to good soil condition with the lowest Soil and Site Stability rating being 92% (see the 'Standards for Rangeland Health' portion later in this document for further information and explanations).

Based on current knowledge, the **proposed action** and **alternative 1** will result in no impact or have a positive impact. The **no grazing alternative** would remove livestock from the area and eliminate both the positive and negative impacts of livestock.

## **Wetlands/Riparian Areas**

The allotments identified in this document contain ephemeral channels adjacent to an interstate water. These are identified as Waters of the United States by the U.S. Army Corps of Engineers (USACE). Proposed grazing activities would not have a significant impact on these channels. Any alteration of these channels would require clearance from the Taos Field Office and USACE. The allotments are within a region known to have playas, which may contain riparian vegetation when wet. On the dates the allotments were visited no riparian vegetation was observed. Thus, **all alternatives** will not have any impact. Allotments will continue to be monitored for playas and their associated vegetation.

## **Water Quality**

Subsurface water – Current impairments are not identified and ground water is not likely to be impacted by the proposed cattle.

Surface – These allotments are located in Hydrologic Unit (HUC) 13010002, 13010005 and 13020101, which comprise 2,180,552 acres within the Taos Field Office along the Upper Rio Grande, Rio San

Antonio and Los Pinos rivers and their tributaries and they are further divided into smaller HUCs. The allotments analyzed in this document occur in five of these smaller HUCs (Table 3).

Table 3. Summary of BLM allotments by 11 Digit HUC (subwatershed and NMED evaluation unit.)

NMED Assessment Unit	Subwatershed	Allotments	BLM Acreage	Percent of Subwatershed
NM-2119_05	Punche	575, 643, 645	3,078	7.17
NM-2119_05	Olla	607, 642, 643, 645	9,139	4.12
NM-2120.A_901	South Piñon	575, 644, 646	4,208	3.27
NM-2120.A_901	Broke Off	646, 649	4,874	5.07
NM-2119_05	Sunshine Valley	645	80	0.06

The New Mexico Environment Department surveyed and evaluated perennial reaches in the three mentioned watersheds in 2002 and identified impairments for stream reaches not meeting water quality standards for designated uses. There are 2 Assessment Units in common with the subject allotments as outlined in Table 2. The following impairments are identified for these units:

NM-2119\_05, Rio Grande (Red River to CO border) – Includes 12,297 acres of BLM land in allotments 575, 607, 642, 643 and 645. This reach was assessed in 2002 and categorized as 5/5C, not supporting coldwater fishery use. Probable causes were temperature and pH with probable sources including removal of riparian vegetation, recreation and tourism Activities (other than boating), hydromodification and habitat modification. BLM staff notes that impairments occurring in the Rio Grande near these allotments are not due to BLM grazing management. Impairments appear to be due primarily to water management and water delivery from Colorado. Thus, **all alternatives** will not have any notable impacts on water quality

### Floodplains

Surveys occurring during 2007 indicated that flood plains occur only within ephemeral channels or arroyos. There are not mapped by FEMA and their frequency and extent of inundation are difficult to estimate due to a lack of gauge data. However, significant flow can occur resulting in channel scouring. Upslope conditions and hydraulic alteration of these channels can degrade the floodplain resulting in excessive erosion and increased flow rates. Any permittee alteration planned within these channels will require a separate NEPA analysis and permits from other regulatory agencies.

Grazing in compliance with the **proposed action** and **alternative 1** will have minimal adverse effect on floodplains due to timing and intensity of grazing. The **no grazing alternative** would have no direct negative effect on ephemeral floodplains.

### Hazardous or Solid Wastes

There were no hazardous or solid wastes identified on the allotments or will result from the proposed action. There would be no effect under **all alternatives**.

### Wild and Scenic Rivers

A small portion of allotment 645 (Rio East) is within the Rio Grande Wild and Scenic River boundary. In accordance with the Rio Grande Corridor Plan, no livestock grazing is permitted within the river corridor, consequently there would be no effect in **all alternatives**.

## Prime or Unique Farmland

There have been no prime or unique farmlands identified within the Taos Field Area, so there would be no effect under **all alternatives**.

## Vegetation

Vegetation expected for the soils identified in the allotments include: western wheatgrass, Indian ricegrass, blue grama, bottlebrush squirreltail, ring muhly, threeawn, needle and thread, prairie junegrass, muttongrass, Arizona fescue, sideoats grama, fringe sage, black sagebrush, groundsel, winter fat, sagebrush, prickly pear, fourwing saltbush, rabbitbrush, snakeweed, yucca, pinyon, juniper, scarlet globemallow, Indian paintbrush, wild buckwheat and other species in smaller amounts.

The **proposed action** and **alternative 1** recommends a vegetation treatment in allotment 645 to increase species diversity and multi-structured sagebrush community. This would be accomplished by either a prescribed burn or disking in a mosaic fashion portions of the allotment. Drill seeding with native species would then follow the treatment. This proposed vegetation treatment will be addressed in another NEPA document when funding becomes available.

The **proposed action** also recommends a change in livestock for allotments #607, #642 and #643 and significant date changes for allotments #607 and #643. The current permit for the three aforementioned allotments are for sheep, it is recommended that they be changed to cattle (cow/calf pairs) and the dates be changed to dormant season grazing – as outlined in Table 1. AUMs were converted using the 5:1 (sheep:cattle) and by using the NRCS pounds per acre by soil type. This **proposed action** will reduce the impacts on actively growing grasses and forbs/shrubs by grazing the allotments during their dormant season. **Alternative 1** will contribute to additional impacts to vegetation. The **no grazing alternative** would result in no measurable vegetative removal from the allotments.

Grazing can and has impacted vegetation within many of the allotments, especially due to historic sheep grazing. The interdisciplinary resource team concluded that the allotments are in better ecological condition than in the past and the areas that could still be improved in areas of the aforementioned historic grazing. Therefore, under the **proposed action** and **alternative 1**, no additional impacts to vegetation are expected. Under the **no grazing alternative**, there would be no measurable vegetative removal from the allotment.

## Noxious Weeds

Any time livestock are grazed in other areas and then returned to the allotment or fed non-certified feed there is a risk of introducing exotic or noxious plant species to the allotment. The **proposed action** and **alternative 1** would not pose additional risks of introduction or spread of noxious weeds beyond those already occurring. Under **all alternatives**, weeds could be introduced by road maintenance equipment or recreational activities.

Under the **proposed action** and **alternative 1**, weeds could be introduced to the allotment through livestock feces, emergency feed, watering equipment or vehicles associated with the management of livestock. The **no grazing alternative**, would limit the risk of new infestation to those caused by human activities and wildlife.



## Cultural Resources

All allotments were visited and Class 2 surveys were completed to identify sites to determine the impacts grazing may have on the sites located. Results are summarized in Table 4.

Table 4. Summary of cultural resource surveys by allotment

Allotment Number	575	607	642	643	644	645	646	649
Total Federal Acres	1,760	1,440	4,274	964	3,010	3,885	240	2,134
Survey Date	7/18/2007	7/18/2007	7/19/2007	7/18/2007	7/17/2007	7/19/2007	7/17/2007	7/17/2007
Sites Recorded	0	0	0	0	0	1	0	0
Site Type	N/A	N/A	N/A	N/A	N/A	Lithic Scatter (LA 136187)	N/A	N/A
Adverse Affects	None	None	None	None	None	None	None	None

Under the **proposed action** and **alternative 1**, grazing intensity would remain at or near current levels. Based upon a literature, site and survey files review and the reconnaissance inventory, it is likely that little or no damage would result from grazing. But, continued grazing in these subject allotments could impact cultural resources in two ways. First, grazing could cause some trampling of artifacts and features. Second, natural erosion due to ground disturbance could damage sites. These effects would be slightly less under the **no grazing alternative**. As seen in the Table 4, no impacts to cultural resources were discerned during the surveys of the allotments. Therefore, there would be little or no damage to cultural sites from grazing. The **no grazing alternative**, would have no effect on cultural resources by removing livestock from the allotment.

## Native American Religious Concerns

There have been no areas of concern identified within these allotments. As part of the EA process, all tribes within the Field Office boundary will receive the opportunity to provide information on any areas of concern in or near the allotments.

## Wildlife

The allotments are located in the Intermountain Basins Big Sagebrush Shrubland and Rocky Mountain Montane Mixed Conifer Forest and Woodland, key wildlife habitat types as identified in the Comprehensive Wildlife Conservation Strategy of the New Mexico Department of Game and Fish (2005). Existing habitat within the allotments include: pinyon-juniper woodlands, open prairie, and sagebrush savannahs and supports seasonal home ranges elk, mule deer, pronghorn, coyote, prairie dog, badger, black-tailed jackrabbit, desert cottontail, gopher, mice, bats, raptors, turkey vulture, American kestrel, common nighthawk, broad-tailed hummingbird, Say's phoebe, common raven, horned lark, rock wren, reptiles, amphibians and a variety of insects. Allotment #645 could support bighorn sheep foraging habitat due to an introduced herd on the Rio Grande, and territories for nesting raptors also occur adjacent to this allotment. The region is an important refuge for many species of wildlife.

Livestock grazing has occurred in this area for decades, with the greatest number of animals and associated disturbance occurring in the late 1800's. The current condition of the habitat is attributed to a long history of improper grazing that has resulted in some loss of native perennial grasses and an expansion of sagebrush and other shrubs. Historic grazing also reduced the diversity of the forb component. In these dense stands of sagebrush, even moderate levels of livestock grazing may remove the herbaceous understory, which in turn releases sagebrush seedlings from competition with herbaceous and graminoid plants. This process results in excessively dense sagebrush stands with a sparse understory of annuals and unpalatable perennials (Havstad and Vavra 2004). It is likely that bird and small mammal assemblages have been affected by the change in structure and composition of the vegetative community. Effects of livestock grazing, invasion of noxious plants and a changing fire regime have affected the prey base of top-level predators in the system, such as raptors, carnivores, and rattlesnakes (Jenkins et al. 2004).

Impacts of improper grazing practices on wildlife and habitat include: increased competition for limited water, forage, and space; alteration of vegetative composition and structure; impacts to stream hydrology and water quality; and reduced soil permeability and potential to support plants due to soil compaction. Judicious grazing practices can have positive affects on wildlife and be a beneficial management tool; these include: increases in vegetation composition diversity and improvement of forage availability and quality for early to mid-successional wildlife species; creation of patchy habitat with high structural diversity for feeding, nesting and hiding; opening up areas of dense vegetation to improve foraging areas for a variety of wildlife; removing rank, coarse grass that will encourage regrowth and improve abundance of high quality forage for wild ungulates; stimulating browse production by reducing grass biomass; and improving nutritional quality of browse by stimulating plant regrowth (NMDGF 2005).

The allotments contain critical winter and summer range and a migratory corridor for elk, mule deer and pronghorn. Winter range is considered the most limiting habitat type for elk and mule deer, and includes sagebrush-steppe, pinyon-juniper woodlands, mountain shrub, and ponderosa pine below 7,500 feet. Winter diets for mule deer are a combination of forbs, browse, and new growth on cool-season grasses. Browse becomes an increasing portion of the diet as snow accumulates or forbs and grasses become depleted. In northern New Mexico, mule deer become concentrated on winter ranges with densities of 20-100 deer/square mile in suitable habitat (Watkins and Bishop et al. 2007). Winter ranges are critical because these areas support higher densities of mule deer and elk on less available forage, are less tolerant of high herbivory rates, are prone to non-native weed invasion, and are potential areas for development of energy, minerals or residential subdivisions.

Studies in northern New Mexico have indicated that total elimination of grazing did not improve range condition on upland or lowland sites when compared with adjacent moderately grazed areas (Holecheck and Stephenson 1985). There are examples that suggest many wildlife species are tolerant of moderate grazing and many appear to benefit from light to conservative grazing. Smith et al. (1996) found that lightly grazed climax rangelands and conservatively grazed late seral rangelands had similar songbird and total bird populations. They also concluded that wildlife diversity was higher on the conservatively grazed late seral than the lightly grazed climax rangeland. Studies in southeastern Arizona by Bock et al. (1984) support the hypothesis that conservatively to moderately grazed areas in mid or late seral condition supported greater diversity of wildlife than ungrazed areas in climax condition. Livestock grazing was also shown to enhance forage for elk and manage their distribution by increasing availability and nutritional value of preferred grasses in early growth stages (Holechek et al. 2004). Best management practices would ensure that forage production within this area can support both wildlife and livestock on a sustained basis. The functionality assessment of habitat components is as outlined in Table 4.

The **proposed action** and **alternative 1** would not have a notable adverse impact on wildlife. Analyses

of resident herbivore diets in northern New Mexico show pronghorn consume primarily forbs and shrubs and very little grass. Cattle primarily eat grasses, while sheep select nearly equal proportions of grasses, forbs and shrubs (Jeffers 1985). Elk graze and browse a variety of plant species depending on the season and forage quality and availability, preferring green grass in the spring, eating more forbs and shrubs in the summer, and often shrubs and conifers in winter. Mule deer forage consists primarily of shrubs and trees in all seasons, with up to 50% being forbs the in the summer and 25% consisting of grasses in the spring (Watkins and Bishop et al. 2007). With the change of livestock from sheep to cattle in allotment #607, #642 and #643, there would be a reduction of competition with pronghorn and a slight increase in competition with elk. The **no grazing alternative** would remove all possible competition between wildlife and livestock.

Table 4. Functionality assessment for Biotic Fauna.

Allot. #	575	607	642	643	644	645	646	649
Biotic Fauna Rating	Functioning at Risk-Static	Proper Functioning Condition	Proper Functioning Condition	Proper Functioning Condition	Proper Functioning Condition	Proper Functioning Condition	Proper Functioning Condition	Proper Functioning Condition
Summary	Static was given due to the lack of data for a trend	N/A	N/A	N/A	N/A	N/A	N/A	N/A

### Threatened or Endangered Species

Federally listed threatened (T) and endangered (E) species in Taos and Rio Arriba counties include: black-footed ferret (*Mustela nigripes*) (E); Southwestern willow flycatcher (*Empidonax traillii extimus*) (E); interior least tern (*Sterna antillarum*) (E); Rio Grande silvery minnow (*Hybognathus amarus*) (E); and Mexican spotted owl (*Strix occidentalis lucida*) (T). It is determined that there are no federally listed threatened or endangered species likely to be found in the subject allotments. There is one state-listed threatened species which may be found in the area, the Bald eagle (*Haliaeetus leucocephalus*), during winter months. There is a sub-species of the Gunnison's prairie dog (montane) (*Cynomys gunnisoni*), listed as a federal Candidate species, located on the allotments. There is no designated critical habitat for any species listed by the U.S. Fish and Wildlife Service (USFWS) within the allotments. It is determined that **all alternatives** will have no affect on federally listed threatened or endangered species, and minimal to no impact on species that are listed as Proposed or Candidate by the USFWS or state-listed threatened or endangered species.

Migratory bird species of conservation concern (BLM Interim Management Guidance 2008-050) that have the potential to occur on the allotment include burrowing owl, ferruginous hawk, prairie falcon, golden eagle, mountain plover, loggerhead shrike, mourning dove, pinyon jay, Brewer's sparrow, and sage sparrow. The **proposed action** and **alternative 1** have the potential to have a negative affect upon individual birds, eggs, young and/or the nesting habitat of ground nesting birds, such as mountain plover, due to trampling, however, it is unlikely there would be a notable impact to the population of this or any other species of conservation concern. The **no grazing alternative** could have either a beneficial or detrimental affect on individual migratory bird species of concern, depending on the response of range condition and individual species requirements, but affects at the population or species level would not be adverse.

Species of Greatest Conservation Need (NMDGF 2005) that have the potential to occur on the allotment include: ferruginous hawk, mourning dove, loggerhead shrike, sage thrasher, sage sparrow, bald eagle,

golden eagle, olive-sided flycatcher, pinyon jay, yellow warbler, white-tailed jackrabbit, Gunnison's prairie dog, mule deer, tiger salamander, and collared lizard. It is determined that **all alternatives** will have minimal impacts on Species of Greatest Conservation need.

## Social / Economic Issues

BLM permits/leases are transferred to qualified applicants at the request of the current permittee/lessee; the BLM has had no influence on the social makeup of those who currently hold these permits. Therefore, it has been determined that **all alternatives** would not be likely to result in impacts which would occur disproportionately in low-income groups, minorities or Indian tribes. With regard to economics, the **proposed action** and **alternative 1** would allow the permittee to continue the lifestyle they have known and earn money from cattle operations on federal lands. Suspension of the grazing permit under the **no grazing alternative** would cause monetary losses to the permittee/lessee, in the form of increased costs to rent additional pasture or in purchasing feed.

## Recreation

There are no developed recreation sites on the subject allotments but one allotment is two miles northeast of the Wild Rivers Recreation Area. This is too far way to have any effects, positive or negative. Therefore, it is determined that **all alternatives** would not have measurable impacts on recreation.

## Standards for Rangeland Health

Field crews completed the Rangeland Health Evaluation Summary Worksheet for all the subject allotments, with subdivision by parcel or distinct Ecological Site. Results are summarized in Table 5 by Soil/Site Stability, Hydrologic Function and Biotic Integrity and totals by site and indicator group. The percent of indicator score was created by multiplying an assigned value for departure from site descriptions/reference areas by the number of indicators at the level. Departure scores are categorized as: none to slight = 5, slight to moderate = 4, moderate = 3, moderate to extreme = 2 and extreme = 1. For example, if all indicators under Soil/Site Stability were rated none to slight (best condition), the equation would be  $5(\text{score}) \times 9(\text{indicators}) = 45 / 45 \times 100 = 100\%$  similarity, or what is expected based on an Ecological Site Description.

The Standards are a tool for assessing range condition and are not analyzed under **any alternatives** here. If an allotment or pasture falls below 80% in the Soil Site Stability, Hydrologic, or Biotic indicators, monitoring should be established to determine the cause/s of the low rating. The BLM in consultation with the permittee and various other agencies, through an interdisciplinary effort would develop goals and objectives for the areas that are falling below 80% to improve the condition.

Table 5. Summary of indicator types by allotment.

Allotment Number	575	607	642	643	644	645	646	649
Observers	Lopez, Riehn, Young	Lopez, Riehn, Young	Lopez, Riehn, Young	Lopez, Riehn, Young	Lopez, Riehn, Young	Lopez, Riehn, Young	Lopez, Riehn, Young	Lopez, Riehn, Young
Survey Date	7/18/2007	7/18/2007	7/19/2007	7/18/2007	7/17/2007	7/19/2007	7/17/2007	7/17/2007
Percent of Soil/Site Stability	94%	100%	92%	100%	98%	98%	100%	100%

<b>Percent of Hydrologic Function</b>	94%	100%	90%	100%	96%	96%	100%	100%
<b>Percent of Biotic Integrity</b>	84%	100%	93%	95%	93%	93%	93%	95%
<b>Average Percentage</b>	90%	100%	92%	98%	96%	96%	98%	98%

## Residual Impacts

Residual impacts of livestock grazing would not change under the **proposed action** and may slightly change in **alternative 1**. There would continue to be moderate removal of current years growth on forage species. This removal may be detectable by visitors to the area but is within the acceptable range. Livestock would be visible on the allotment during their season of use. This can be positive or negative depending on the perspective of each visitor. There would be no measurable impact from the **no grazing alternative**.

## Cumulative Impacts

The primary disturbance factor within the region has been historical grazing with subsequent habitat conversion. The area has been affected by habitat fragmentation and conversion due to urban, residential, commercial, and recreational activities and development. The future effects of these developmental factors may increase as human populations in the area continue to grow.

BLM land comprises 13% of the area in Rio Arriba County and 31% in Taos County. The allotments cover 3.8% of BLM land in Taos County and 1.0% in Rio Arriba County and no more than 7.2% of any subwatershed analyzed. Due to the relatively low percentages of federal land involved, there would be no significant impact. Livestock grazing is only one of several disturbance activities within the area. Some uses with similar impacts are off-road vehicles, other recreational use and road construction and maintenance. There would be no measurable cumulative impacts from the **proposed action** or **either alternative**.

## Conformance with Plans

The proposed permit renewals within this document are in conformance with the Taos Resource Area Management Plan (1988). Livestock grazing impacts were analyzed on a Resource Area wide basis in the Taos Resource Management Plan. An Allotment Evaluation (AE) document has been prepared for each allotment and is available for review at the Taos Field Office. Individual allotment maps are available at the Taos Field Office and upon request.

## Consultation and Coordination

This Environmental Assessment will be mailed to all individuals or organizations who have notified the Taos Field Office of their interest. These individuals or organizations will be given 15 days to make comments on the accuracy of this document.

## Preparers

This document was prepared and reviewed by a team from the Taos Field Office. They include:

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